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Electrochemical determination of glutathione

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Abstract

Procedures were developed for determining glutathione by voltammetry and coulometric titration with electrogenerated oxidants using the biamperometric indication of the titration end-point. Possible mechanisms of the glutathione reaction with electrogenerated halogens are discussed. Microgram amounts of glutathione can be determined in model solutions with an RSD of 1-2%. The oxidation wave of glutathione in the voltammogram is observed at 0.95 V. At higher glutathione concentrations, the wave takes the shape of a peak. Glutathione concentration in the range between 9.15 × 10 -5 and 2.14 × 10 -3 M is a linear function of its oxidation wave height at a stationary platinum electrode in a 0.05 M H 2SO 4 solution. The determination limit for glutathione is 1.9 × 10 -5 M. The procedures for determining glutathione in human blood were proposed.

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